REMARKS

Examiner Interview

The Applicants would like to thank Examiner William McCalister for his time in conducting the Interview on December 2, 2009. A proposed amendment to claim 1 was discussed, with the Examiners indicating that the proposed amendment likely would overcome the art cited provided support for the amendment is present in the application.

Claims 1-10 and 12-20 are pending in the application. Claims 1, 7, 12, and 17 have been amended and Claims 21-26 are added. Favorable reconsideration of the application, as amended, is respectfully requested.

Rejections Under 35 U.S.C. § 102

Claims 1-5, 7, 9, 10, 12-17, 19, 20 stand rejected under 35 U.S.C. § 102 as being anticipated by *Ollivier* (US 6,450,200). The Applicant believes that all pending claims are allowable for at least the following reasons. Withdrawal of the rejection is respectfully requested.

The Applicants have amended **Claims 1, 7, 12, & 17** to include the following limitation (or similar language) "the flow control component and pressure detector arranged without pressure regulation of the fluid between the flow control component and pressure detector". This is supported by, for example, Figure 1, but is also inherent in how the device operates. One of ordinary skill, taking the drawings (e.g., Figs. 1, 3, 4, 5, 7, and 13) coupled with the explanations of modes of operation, would understand the absence of the regulator between the detector 46 and valve 20 is an important part of the structure. To the extent an explicit recitation will be helpful, the Applicant's are willing to insert an appropriate paragraph into the Specification.

This structural distinction is defines a significant structural distinction from the cited art and therefore supports an argument in favor of patentability.

The Applicants explain, as follows. By removing a pressure regulator from between the pressure detector (46) and the flow control component (40A) (or more particularly valve (20)) the actual flow is precisely consistent with the mass flow represented by flow set signal S0 (e.g., ¶ [0012]). More specifically, the present invention precisely regulates the signal S1 output from sensor 16 (See, ¶ [0100]). This is expressed in the limitation

"measures changes in the pressure using the pressure detector while the channel is closed by the first opening and closing valve, wherein the aperture remains fixed at the selected aperture opening during the pressure change measurement, and calculates the deviation from the standard level associated with the selected aperture opening based on the measured changes in the pressure".

As such Claim 1 refers to the limitation of measuring a pressure change used for tuning signal S1.

This means, that when the aperture of the flow control valve mechanism (20) is fixed (such as in step S24 of Fig. 5) and the channel (6) is closed at the first opening and closing valve (42) (such as in step S26 of Fig. 5), the fluid in the device flows freely downstream through the flow control component (40A). This means that the pressure change in the control component (40A) is measurable with detector (46)(step S27 of Fig. 5). Critically, the change in pressure measured by detector (460 is an accurate representation of the fluid flow through valve (20). This would not be the case in *Ollivier*, which suffers from the interposition of the pressure regulator (*Ollivier* 16) between the sensor (*Ollivier* 6) and the control valve (*Ollivier* 22). Further explanation follows.

Accordingly, when fluid undergoes a pressure change between the detector (46) and the valve (20) in the absence of a regulator, the entire change is attributable to the valve (20). No complexity is introduced by the presence of the regulator as is the case in *Ollivier*. Thus, when the fluid undergoes a pressure change that is different from an expected (previously measured) pressure change (for the same conditions and valve settings of valve (20)), the difference is known to be attributable to a deviation of flow signal S1 associated with the mass flow means (8) and sensor (16) (See, ¶[0100]). The lack of the pressure regulator insures that this is accurate. Accordingly, sensor (16) is adjusted to calibrate the system and correct the signal S1. This is not possible with the presence of a regulator and not possible using the *Ollivier* device. Thus, one of ordinary skill appreciates that the regulator must be absent in the claimed location between the detector 46 and the valve 20.

In contrast, in *Ollivier* when fluid is flowing through the flow control valve (*Ollivier* 22) it is regulated by regulator (*Ollivier* 16). Accordingly, when there is a difference between the measured pressure change (measured by pressure sensor (*Ollivier* 6)) and the expected pressure change, *Ollivier* cannot determine whether the difference in the measurements is due to an effect caused by the valve (*Ollivier* 22) or an effect caused by the pressure regulator (*Ollivier* 16). Thus, this key structural distinction between the claimed invention and the cited art enables the

functionality of the claimed invention, as described by the Specification. Moreover, the presence of a regulator between the pressure detector (46) and the flow control components (20/40A) will lead to a non-functional embodiment. Thus, one of ordinary skill understands that not only are the amended claims supported in the Specification and Drawings, but that the limitations are inherent in the disclosed modes of operation.

Comments Regarding Claim 26

As an added point, a more direct statement of the limitation is set forth in new **Claim 26**. The affirmative limitation of "the device further arranged so that a fluid flow path flow between the flow control component and pressure detector consists of one of a gas flow tube or a mass flow detection system" is believed to define over the cited art. Support for this language is found in the Specification an illustrated, for example, using Figs. 1, 7, and 13.

Allowability of Rejected Claims

Thus, having several limitations not taught or suggested by *Ollivier*, claims 1, 7, 12, and 17 are believed to be allowable as amended.

The remaining rejected Claims are dependent on base claims 1, 7, 12, and 17 and also feature adding further limitations, and are therefore also allowable. Therefore, for at least these reasons, the Applicants submit that Claims 1-5, 7, 9, 10, 12-17, 19, 20 are all allowable over the cited art.

Comments Regarding Standard Levels and Fixed Aperture Openings

As a related matter, the Applicants point out that the Action asserts (at page 4:5-9) that: "the standard level is *associated with* the selected aperture opening because the standard level is used to set the setpoint flow rate of the MFC {col.6 lines 7-10, 12-16}, wherein the setpoint of the MFC determines the aperture opening of the MFC for each iteration".

This is an important point. *Ollivier*, in reality, dynamically controls the aperture opening based on a setpoint flow rate (this defines the "setpoint flow rate" as a target for control) and accordingly, the aperture opening itself is not fixed to the amount (value) corresponding to the

setpoint. This is in contrast to the claimed invention (e.g., Claim 1) which uses a "fixed aperture". Thus, the standard level is NOT associated with the selected aperture opening.

Added Claims 21, 22, 24, & 25.

In the Action it is stated at page 11:21-12:2 that the Applicant has recited a specified meaning for "standard level". Specifically, that the Applicant has not clarified that the "standard level" is not a specific desired flow rate, but an actual flow rate measured at a previous time. To this end, the Applicants clarify and specifically claim this limitation in new Claims 21, 22, 24, and 25. An example of this clarifying language is Claim 21's "the deviation measurement/control component further calculates the deviation from the standard level associated with the selected aperture opening based on the measured changes in the pressure, wherein the standard level is obtained by a previously conducted process of fixing the aperture of the flow control valve and by measuring pressure changes in actual flow rate".

Such language should clarify the distinctions between the cited art and the claimed invention.

Rejections Under 35 U.S.C. § 103

The Applicants believe that the Action rejects **Claims 3-6, 8-10, & 12-20** under 35 U.S.C. § 103 as being unpatentable over *Ollivier* in view of *Wilmer* (US 5,865,205). Applicant believes that all pending claims are allowable for at least the following reasons. Withdrawal of the rejection is respectfully requested.

The system described in *Wilmer* is similar to the system described in *Ollivier* in that *Wilmer* teaches releasing process gas from a chamber while closing off the gas source and dynamically controlling the flow of gas from the chamber as the process gas is released from the chamber to correspond to a desired regulated gas flow rate. Similarly, Wilmer does not include the arrangement of detector 46 and valve 20 that make the claimed invention so useful. Nor is there any suggestion of such an arrangement. Accordingly, *Wilmer* adds nothing to the teachings of *Ollivier* in this regard.

Therefore, Applicants submit that the amended claims are allowable over the cited art. claims 7, 17, and all claims dependent on these claims are also allowable.

As set forth in the remarks above, the Applicants believe that all claims currently pending are in condition for allowance, and should now be allowed. Should the Examiner believe that a telephone conference would expedite the prosecution of this application, the undersigned can be reached at the telephone number set out below.

Respectfully submitted,
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